



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4WD-WPB

Ms. Lois Ferdinand
2266 Collins Road, N.W.
Atlanta, Georgia 30318

Dear Ms. Ferdinand:

Thank you for your October 3, 1990, letter in which you express your environmental concerns. Concerning Sanifil landfill in Cobb County.

As stated in our telephone conversation on October 15, 1990. Environmental Protection Agency (EPA) will input this site into our data system as a new discover site.

Attached is a copy of a Preliminary Assessment Petition that we talked about. If you should have any questions or concerns. Please don't hesitate to contact me at (404) 347-5065.

Sincerely,

Janice P. Thomas
Site Assessment Manager



10715675

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APPENDIX A

OMB Approval Number: 2050-0095
Approved for Use Through: 1/92

PA Scoresheets

Site Name: SOUTHERN STATES LANDFILL

CERCLIS ID No.: GAD984288191

Street Address: 13 COLLINS ROAD

City/State/Zip: ATLANTA, GA 30318

Investigator: ALEXANDRA Y. BROOKS

Agency/Organization: GA EPD

Street Address: 205 BUTLER ST. SE

City/State/Zip: ATLANTA, GA 30334

Date: SEPT 30, 1992

INSTRUCTIONS FOR SCORESHEETS

Introduction

This scoresheets package functions as a self-contained workbook providing all of the basic tools to apply collected data and calculate a PA score. Note that a computerized scoring tool, "PA-Score," is also available from EPA (Office of Solid Waste and Emergency Response, Directive 9345.1-11). The scoresheets provide space to:

- Record information collected during the PA
- Indicate references to support information
- Select and assign values ("scores") for factors
- Calculate pathway scores
- Calculate the site score

Do not enter values or scores in shaded areas of the scoresheets. You are encouraged to write notes on the scoresheets and especially on the Criteria Lists. On scoresheets with a reference column, indicate a number corresponding to attached sources of information or pages containing rationale for hypotheses; attach to the scoresheets a numbered list of these references. Evaluate all four pathways. Complete all Criteria Lists, scoresheets, and tables. Show calculations, as appropriate. If scoresheets are photocopy reproduced, copy and submit the numbered pages (right-side pages) only.

GENERAL INFORMATION

Site Description and Operational History: Briefly describe the site and its operating history. Provide the site name, owner/operator, type of facility and operations, size of property, active or inactive status, and years of waste generation. Summarize waste treatment, storage, or disposal activities that have or may have occurred at the site; note also if these activities are documented or alleged. Identify probable source types and prior spills. Summarize highlights of previous investigations.

Probable Substances of Concern: List hazardous substances that have or may have been stored, handled, or disposed at the site, based on your knowledge of site operations. Identify the sources to which the substances may be related. Summarize any existing analytical data concerning hazardous substances detected onsite, in releases from the site, or at targets.

GENERAL INFORMATION

Site Description and Operational History:

The Southern States Landfill site is located on the western edge of the Atlanta City and Fulton County limits on the banks of the Chattahoochee River. It is bordered on the north by the Chattahoochee River, the southeast by Chambers Landfill, the west by Blue Circle Cement plant and on the east by a pair of CSX rail lines, sewage treatment plant, water treatment plant and other industrial facilities. The total property area consists of approximately thirty nine (39) acres. Primary land use in the area is heavily industrial and commercial use with limited residential use.

Previous to 1984, the site was mined for clay. The time frame for the mining activities at this time is unknown. No other pre-landfilling use is known at this time.

Permit Number 060-010D was issued November 5, 1975 to Southern States Landfill, Inc. authorizing the operation of a sanitary landfill. The landfill was not developed until R. M. Cash and Sons, Inc. purchased the property in June, 1984. Landfilling operations began in October of 1984.

Since beginning operations, the landfill has accepted putrescible and nonputrescible commercial and residential solid waste. Regulated hazardous wastes were not accepted at the landfill. Any amount of hazardous substance should not be greater than that found in typical municipal sanitary landfills.

The site was owned and operated by Southern States Landfill, Inc. from its opening in 1984 until mid 1990, when it was sold to Sanifill, Inc., the present owner and operator. Waste was deposited in sequential manner beginning at the northeast corner near the railroad. Sometime after initial operations began, a construction and demolition waste section was added near the river at the northwestern corner of the site.

Probable Substances of Concern:

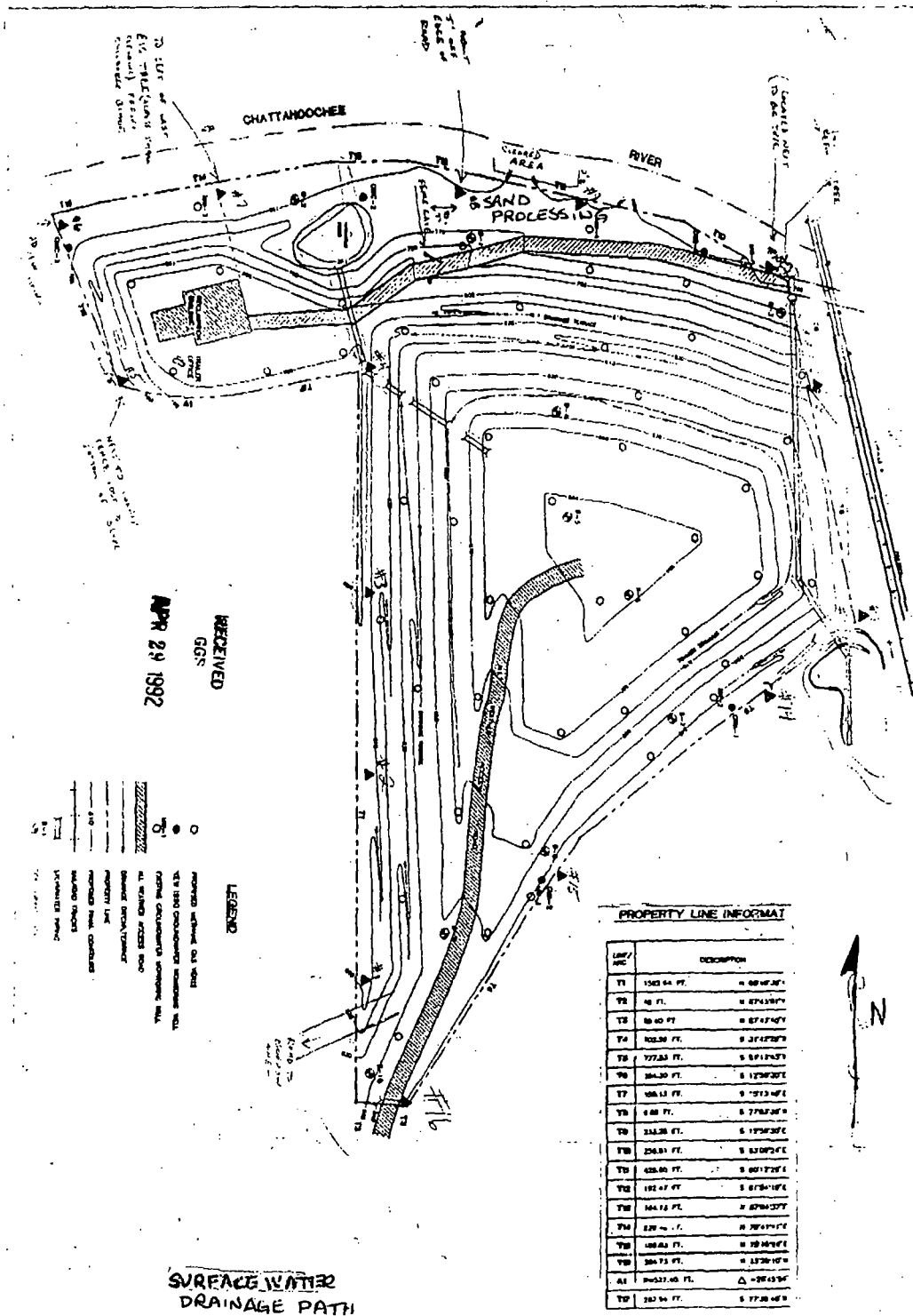
(Previous investigations, analytical data)

PREVIOUS INVESTIGATIONS INDICATED GROUNDWATER AND AIR CONTAMINATION. THE INSTALLATION OF A VACUUM SYSTEM AND A FLARE IS CONTROLLING THE AIR EMISSIONS. ADDITIONAL GROUNDWATER INVESTIGATIONS INDICATE GROUND WATER CONTAMINATION MAY BE COMING FROM OFFSITE.

GENERAL INFORMATION (continued)

Site Sketch: Prepare a sketch of the site (freehand is acceptable). Indicate all pertinent features of the site and nearby environs, including: waste sources, buildings, residences, access roads, parking areas, drainage patterns, water bodies, vegetation, wells, sensitive environments, etc.

(Show all pertinent features, indicate sources and closest targets, indicate north)



SOURCE EVALUATION

- Number and name each source (e.g., 1. East Drum Storage Area, 2. Sludge Lagoon, 3. Battery Pile).
- Identify source type according to the list below.
- Describe the physical character of each source (e.g., dimensions, contents, waste types, containment, operating history).
- Show waste quantity (WQ) calculations for each source for appropriate tiers. Refer to instructions opposite page 5 and PA Tables 1a and 1b. Identify waste quantity tier and waste characteristics (WC) factor category score (for a site with a single source, according to PA Table 1a). Determine WC from PA Table 1b for the sum of source WQs for a multiple-source site.
- Attach additional sheets if necessary.
- Determine the site WC factor category score and record at the bottom of the page.

Source Type Descriptions

Landfill: an engineered (by excavation or construction) or natural hole in the ground into which wastes have been disposed by backfilling, or by contemporaneous soil deposition with waste disposal, covering wastes from view.

Surface Impoundment: a topographic depression, excavation, or diked area, primarily formed from earthen materials (lined or unlined) and designed to hold accumulated liquid wastes, wastes containing free liquids, or sludges that were not backfilled or otherwise covered during periods of deposition; depression may be dry if deposited liquid has evaporated, volatilized or leached, or wet with exposed liquid; structures that may be more specifically described as lagoon pond, aeration pit, settling pond, tailings pond, sludge pit, etc.; also a surface impoundment that has been covered with soil after the final deposition of waste materials (i.e., buried or backfilled).

Drums: portable containers designed to hold a standard 55-gallon volume of wastes.

Tanks and Non-Drum Containers: any stationary device, designed to contain accumulated wastes, constructed primarily of fabricated materials (such as wood, concrete, steel, or plastic) that provide structural support; any portable or mobile device in which waste is stored or otherwise handled.

Contaminated Soil: soil onto which available evidence indicates that a hazardous substance was spilled, spread, disposed, or deposited.

Pile: any non-containerized accumulation above the ground surface of solid, non-flowing wastes; includes open dumps. Some types of piles are: Chemical Waste Pile -- consists primarily of discarded chemical products, by-products, radioactive wastes, or used or unused feedstocks; Scrap Metal or Junk Pile -- consists primarily of scrap metal or discarded durable goods such as appliances, automobiles, auto parts, or batteries, composed of materials suspected to contain or have contained a hazardous substance; Tailings Pile -- consists primarily of any combination of overburden from a mining operation and tailings from a mineral mining, beneficiation, or processing operation; Trash Pile -- consists primarily of paper, garbage, or discarded non-durable goods which are suspected to contain or have contained a hazardous substance.

Land Treatment: landfarming or other land treatment method of waste management in which liquid wastes or sludges are spread over land and tilled, or liquids are injected at shallow depths into soils.

Other: a source that does not fit any of the descriptions above; examples include contaminated building, ground water plume with no identifiable source, storm drain, dry well, and injection well.

✓ 4

SOURCE EVALUATION

Source No.: 1	Source Name: LANDFILL	Source Waste Quantity (WQ) Calculations:
Source Description: LANDFILL ~39 ACRES		

Source No.:	Source Name:	Source Waste Quantity (WQ) Calculations:
Source Description:		

Source No.:	Source Name:	Source Waste Quantity (WQ) Calculations:
Source Description:		

Site WC:
32

WASTE CHARACTERISTICS (WC) SCORES

WC, based on waste quantity, may be determined by one or all of four measures called "tiers": constituent quantity, wastestream quantity, source volume, and source area. PA Table 1a (page 5) is divided into these four tiers. The amount and detail of information available determine which tier(s) to use for each source. For each source, evaluate waste quantity by as many of the tiers as you have information to support, and select the result that gives you the highest WC score. If minimal, incomplete, or no information is available regarding waste quantity, assign a WC score of 18 (minimum).

PA Table 1a has 6 columns: column 1 indicates the quantity tier; column 2 lists source types for the four tiers; columns 3, 4, and 5 provide ranges of waste amount for sites with only one source, which correspond to WC scores at the top of the columns (18, 32, or 100); column 6 provides formulas to obtain source waste quantity (WQ) values at sites with multiple sources.

To determine WC for sites with only one source:

1. *Identify source type (see descriptions opposite page 4).*
2. *Examine all waste quantity data available.*
3. *Estimate the mass and/or dimensions of the source.*
4. *Determine which quantity tiers to use based on available source information.*
5. *Convert source measurements to appropriate units for each tier you can evaluate for the source.*
6. *Identify the range into which the total quantity falls for each tier evaluated (PA Table 1a).*
7. *Determine the highest WC score obtained for any tier (18, 32, or 100, at top of PA Table 1a columns 3, 4, and 5, respectively).*
8. *Use this WC score for all pathways. **

To determine WC for sites with multiple sources:

1. *Identify each source type (see descriptions opposite page 4).*
2. *Examine all waste quantity data available for each source.*
3. *Estimate the mass and/or dimensions of each source.*
4. *Determine which quantity tiers to use for each source based on the available information.*
5. *Convert source measurements to appropriate units for each tier you can evaluate for each source.*
6. *For each source, use the formulas in column 6 of PA Table 1a to determine the WQ value for each tier that can be evaluated. The highest WQ value obtained for any tier is the WQ value for the source.*
7. *Sum the WQ values for all sources to get the site WQ total.*
8. *Use the site WQ total from step 7 to assign the WC score from PA Table 1b.*
9. *Use this WC score for all pathways. **

* The WC score is considered in all four pathways. However, if a primary target is identified for the ground water, surface water, or air migration pathway, assign the determined WC or a score of 32, whichever is greater, as the WC score for that pathway.

PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

PA Table 1a: WC Scores for Single Source Sites and Formulas for Multiple Source Sites

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned WC scores)			MULTIPLE SOURCE SITES
		WC = 18	WC = 32	WC = 100	
Correct-Just-Release	N/A	≤ 100 lb	> 100 to 10,000 lb	> 10,000 lb	$lb + 1$
	N/A	$\leq 500,000$ lb	> 500,000 to 50 million lb	> 50 million lb	$lb + 5,000$
VOLUME	Landfill	≤ 6.75 million ft^3 $\leq 250,000$ yd^3	> 6.75 million to 675 million ft^3 > 250,000 to 25 million yd^3	> 675 million ft^3 > 25 million yd^3	$ft^3 + 67,500$ $yd^3 + 2,500$
	Surface impoundment	$\leq 6,750$ ft^3 ≤ 250 yd^3	> 6,750 to 675,000 ft^3 > 250 to 25,000 yd^3	> 675,000 ft^3 > 25,000 yd^3	$ft^3 + 67.5$ $yd^3 + 2.5$
	Drums	$\leq 1,000$ drums	> 1,000 to 100,000 drums	> 100,000 drums	$drums + 10$
	Tanks and non-drum containers	$\leq 50,000$ gallons	> 50,000 to 5 million gallons	> 5 million gallons	$gallons + 500$
	Contaminated soil	≤ 6.75 million ft^3 $\leq 250,000$ yd^3	> 6.75 million to 675 million ft^3 > 250,000 to 25 million yd^3	> 675 million ft^3 > 25 million yd^3	$ft^3 + 67,500$ $yd^3 + 2,500$
	Pile	$\leq 6,750$ ft^3 ≤ 250 yd^3	> 6,750 to 675,000 ft^3 > 250 to 25,000 yd^3	> 675,000 ft^3 > 25,000 yd^3	$ft^3 + 67.5$ $yd^3 + 2.5$
	Other	$\leq 6,750$ ft^3 ≤ 250 yd^3	> 6,750 to 675,000 ft^3 > 250 to 25,000 yd^3	> 675,000 ft^3 > 25,000 yd^3	$ft^3 + 67.5$ $yd^3 + 2.5$
AREA	Landfill	$\leq 340,000$ ft^2 ≤ 7.8 acres	> 340,000 to 34 million ft^2 > 7.8 to 780 acres	> 34 million ft^2 > 780 acres	$ft^2 + 3,400$ $acres + 0.078$
	Surface impoundment	$\leq 1,300$ ft^2 ≤ 0.029 acres	> 1,300 to 130,000 ft^2 > 0.029 to 2.9 acres	> 130,000 ft^2 > 2.9 acres	$ft^2 + 13$ $acres + 0.00029$
	Contaminated soil	≤ 3.4 million ft^2 ≤ 78 acres	> 3.4 million to 340 million ft^2 > 78 to 7,800 acres	> 340 million ft^2 > 7,800 acres	$ft^2 + 34,000$ $acres + 0.78$
	Pile*	$\leq 1,300$ ft^2 ≤ 0.029 acres	> 1,300 to 130,000 ft^2 > 0.029 to 2.9 acres	> 130,000 ft^2 > 2.9 acres	$ft^2 + 13$ $acres + 0.00029$
	Land treatment	$\leq 27,000$ ft^2 ≤ 0.62 acres	> 27,000 to 2.7 million ft^2 > 0.62 to 62 acres	> 2.7 million ft^2 > 62 acres	$ft^2 + 270$ $acres + 0.0062$

1 ton = 2,000 lb = 1 yd^3 = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC Scores for Multiple Source Sites

WQ Total	WC Score
> 0 to 100	18
> 100 to 10,000	32
> 10,000	100

GROUND WATER PATHWAY

Ground Water Use Description: Provide information on ground water use in the vicinity. Present the general stratigraphy, aquifers used, and distribution of private and municipal wells.

Calculations for Drinking Water Populations Served by Ground Water: Provide populations from private wells and municipal supply systems in each distance category. Show apportionment calculations for blended supply systems.

**GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION**

Describe Ground Water Use Within 4-miles of the Site:

(Describe stratigraphy, information on aquifers, municipal and/or private wells)

THERE IS VERY LITTLE GROUNDWATER USE IN THE IMMEDIATE AREA OF THE SITE. WHAT USE THERE IS CONSISTS OF MAINLY COMMERCIAL USE. AS THE AREA IS URBAN, MOST WATER IS SUPPLIED THROUGH THE MUNICIPALITIES WHICH OBTAIN THEIR WATER FROM THE CHATTAHOOCHEE RIVER.

Calculations for Drinking Water Populations Served by Ground Water:

SEE GEOLOGIC SURVEY REPORT IN APPENDIX

0 - 1/4 MILES	0 PERSONS
1/4 - 1/2	0
1/2 - 1	0
1 - 2	2
2 - 3	2
3 - 4	1

GROUND WATER PATHWAY CRITERIA LIST

This "Criteria List" helps guide the process of developing hypotheses concerning the occurrence of a suspected release and the exposure of specific targets to a hazardous substance. The check-boxes record your professional judgment in evaluating these factors. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypotheses, list them at the bottom of the page or attach an additional page.

The "Suspected Release" section identifies several site, source, and pathway conditions that could provide insight as to whether a release from the site is likely to have occurred. If a release is suspected, use the "Primary Targets" section to evaluate conditions that may help identify targets likely to be exposed to a hazardous substance. Record responses for the well that you feel has the highest probability of being exposed to a hazardous substance. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary."

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question. If you check the "Suspected Release" box as "yes," make sure you assign a Likelihood of Release value of 550 for the pathway.

GROUND WATER PATHWAY CRITERIA LIST	
SUSPECTED RELEASE	PRIMARY TARGETS
<p>Y N U e o n s k</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Are sources poorly contained? NO LINER</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)? UNCOVERED LANDFILL</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is waste quantity particularly large?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is precipitation heavy?</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Is the infiltration rate high?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is the site located in an area of karst terrain?</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Is the subsurface highly permeable or conductive?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is drinking water drawn from a shallow aquifer?</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Are suspected contaminants highly mobile in ground water?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Does analytical or circumstantial evidence suggest ground water contamination?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other criteria? _____</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> SUSPECTED RELEASE?</p>	<p>Y N U e o n s k</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is any drinking water well nearby?</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Has any nearby drinking water well been closed?</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Has any nearby drinking water user reported foul-tasting or foul-smelling water?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Does any nearby well have a large drawdown or high production rate?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is any drinking water well located between the site and other wells that are suspected to be exposed to a hazardous substance?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Does analytical or circumstantial evidence suggest contamination at a drinking water well?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Does any drinking water well warrant sampling?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other criteria? _____</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> PRIMARY TARGET(S) IDENTIFIED?</p>
<p>Summarize the rationale for Suspected Release (attach an additional page if necessary):</p> <p>TESTING OF G/W MONITORING WELLS INDICATE CONTAMINATION BY CHLOROBENZENE</p>	<p>Summarize the rationale for Primary Targets (attach an additional page if necessary):</p> <p>NO PRIMARY TARGETS DUE TO DISTANCE (> 1 MILE) FROM SITE</p>

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics

Answer the questions at the top of the page. Refer to the Ground Water Pathway Criteria List (page 7) to hypothesize whether you suspect that a hazardous substance associated with the site has been released to ground water. Record depth to aquifer (in feet): the difference between the deepest occurrence of a hazardous substance and the depth of the top of the shallowest aquifer at (or as near as possible) to the site. Note whether the site is in karst terrain (characterized by abrupt ridges, sink holes, caverns, springs, disappearing streams). Record the distance (in feet) from any source to the nearest well used for drinking water.

Likelihood of Release (LR)

1. Suspected Release: Hypothesize based on professional judgment guided by the Ground Water Pathway Criteria List (page 7). If you suspect a release to ground water, use only Column A for this pathway and do not evaluate factor 2.

2. No Suspected Release: If you do not suspect a release, determine score based on depth to aquifer or whether the site is in an area of karst terrain. If you do not suspect a release to ground water, use only Column B to score this pathway.

Targets (T)

This factor category evaluates the threat to populations obtaining drinking water from ground water. To apportion populations served by blended drinking water supply systems, determine the percentage of population served by each well based on its production.

3. Primary Target Population: Evaluate populations served by all drinking water wells that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Ground Water Pathway Criteria List (page 7) to make this determination. In the space provided, enter the population served by any wells you suspect have been exposed to a hazardous substance from the site. If only the number of residences is known, use the average county residents per household (rounded up to the next integer) to determine population served. Multiply the population by 10 to determine the Primary Target Population score. Note that if you do not suspect a release, there can be no primary target population.

4. Secondary Target Population: Evaluate populations served by all drinking water wells within 4 miles that you do not suspect have been exposed to a hazardous substance. Use PA Table 2a or 2b (for wells drawing from non-karst and karst aquifers, respectfully) (page 9). If only the number of residences is known, use the average county residents per household (rounded to the nearest integer) to determine population served. Circle the assigned value for the population in each distance category and enter it in the column on the far-right side of the table. Sum the far-right column and enter the total as the Secondary Target Population factor score.

5. Nearest Well represents the threat posed to the drinking water well that is most likely to be exposed to a hazardous substance. If you have identified a primary target population, enter 50. Otherwise, assign the score from PA Table 2a or 2b for the closest distance category with a drinking water well population.

6. Wellhead Protection Area (WHPA): WHPAs are special areas designated by States for protection under Section 1428 of the Safe Drinking Water Act. Local/State and EPA Regional water officials can provide information regarding the location of WHPAs.

7. Resources: A score of 5 can generally be assigned as a default measure. Assign zero only if ground water within 4 miles has no resource use.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

Waste Characteristics (WC)

8. Waste Characteristics: Score is assigned from page 4. However, if you have identified any primary target for ground water, assign either the score calculated on page 4 or a score of 32, whichever is greater.

Ground Water Pathway Score: Multiply the scores for LR, T, and WC. Divide the product by 82,500. Round the result to the nearest integer. If the result is greater than 100, assign 100.

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Ground Water Pathway Criteria List, page 7)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Is the site located in karst terrain?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Depth to aquifer:	15 ft
Distance to the nearest drinking water well:	> 1 MILE

LIKELIHOOD OF RELEASE

	A Suspected Release (500)	B No Suspected Release (500 = 340)	References
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 7), assign a score of 550. Use only column A for this pathway.	550		
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.			
LR =	550		

TARGETS

3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water wells that you suspect have been exposed to a hazardous substance from the site (see Ground Water Pathway Criteria List, page 7). 0 people x 10 =	0		
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water wells that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, attach a page to show apportionment calculations.	3		
5. NEAREST WELL: If you have identified a primary target population for ground water, assign a score of 50; otherwise, assign the Nearest Well score from PA Table 2. If no drinking water wells exist within 4 miles, assign a score of zero.	5		
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA, or if you have identified any primary target well within a WHPA, assign a score of 20; assign 5 if neither condition holds but a WHPA is present within 4 miles; otherwise assign zero.	0		
7. RESOURCES	5		
T =	13		

WASTE CHARACTERISTICS

8. A. If you have identified any primary target for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	30		
B. If you have NOT identified any primary target for ground water, assign the waste characteristics score calculated on page 4.	32		
WC =	32		

GROUND WATER PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82,500}$$

(subject to a maximum of 100)

2.77

PA TABLE 2: VALUES FOR SECONDARY GROUND WATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category										Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	
0 to ¼ mile	<u>0</u>	20	1	2	5	16	52	163	521	1,633	5,214	16,325	<u>0</u>
> ¼ to ½ mile	<u>0</u>	18	1	1	3	10	32	101	323	1,012	3,233	10,121	<u>0</u>
> ½ to 1 mile	<u>0</u>	9	1	1	2	5	17	52	167	522	1,668	5,224	<u>0</u>
> 1 to 2 miles	<u>2</u>	⑤	1	1	1	3	9	29	94	294	939	2,938	<u>1</u>
> 2 to 3 miles	<u>2</u>	3	1	1	1	2	7	21	68	212	678	2,122	<u>1</u>
> 3 to 4 miles	<u>1</u>	2	1	1	1	1	4	13	42	131	417	1,306	<u>1</u>
Nearest Well =		<u>5</u>	Score =										<u>3</u>

PA Table 2b: Karst Aquifers

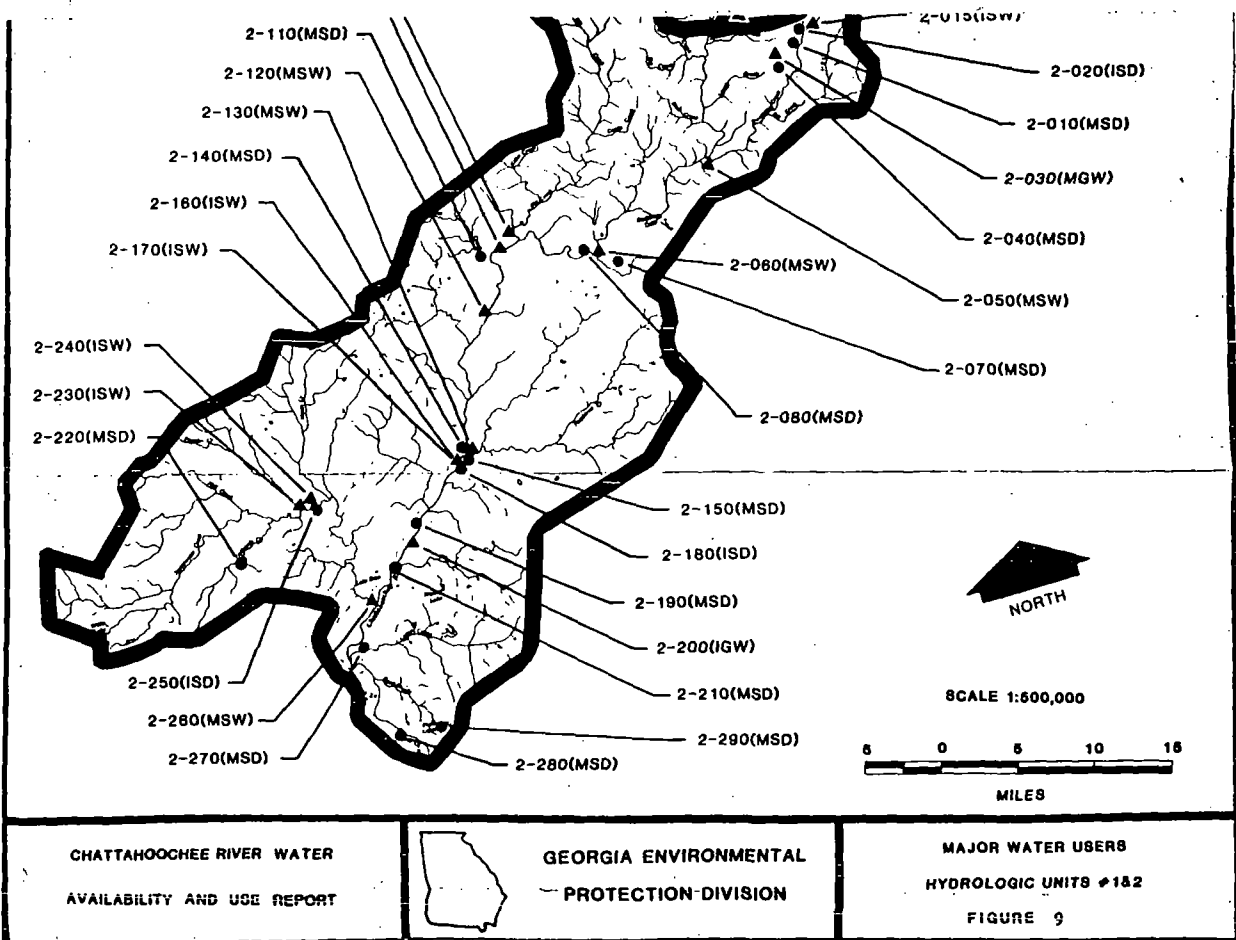
Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category										Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	
0 to ¼ mile	_____	20	1	2	5	16	52	163	521	1,633	5,214	16,325	_____
> ¼ to ½ mile	_____	20	1	1	3	10	32	101	323	1,012	3,233	10,121	_____
> ½ to 1 mile	_____	20	1	1	3	8	26	82	261	816	2,607	8,162	_____
> 1 to 2 miles	_____	20	1	1	3	8	26	82	261	816	2,607	8,162	_____
> 2 to 3 miles	_____	20	1	1	3	8	26	82	261	816	2,607	8,162	_____
> 3 to 4 miles	_____	20	1	1	3	8	26	82	261	816	2,607	8,162	_____
Nearest Well =		<u>N/A</u>	Score =										<u>N/A</u>

SURFACE WATER PATHWAY

Migration Route Sketch: Sketch the surface water migration pathway (freehand is acceptable) illustrating the drainage route and identifying water bodies, probable point of entry, flows, and targets.

SURFACE WATER PATHWAY MIGRATION ROUTE SKETCH

Surface Water Migration Route Sketch:
(include runoff route, probable point of entry, 15-mile target distance limit, intakes, fisheries, and sensitive environments)



SURFACE WATER PATHWAY CRITERIA LIST

This "Criteria List" helps guide the process of developing hypotheses concerning the occurrence of a suspected release and the exposure of specific targets to a hazardous substance. The check-boxes record your professional judgment in evaluating these factors. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypotheses, list them at the bottom of the page or attach an additional page.

The "Suspected Release" section identifies several site, source, and pathway conditions that could provide insight as to whether a release from the site is likely to have occurred. If a release is suspected, use the "Primary Targets" section to guide you through evaluation of some conditions that may help identify targets likely to be exposed to a hazardous substance. Record responses for the target that you feel has the highest probability of being exposed to a hazardous substance. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary."

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question. If you check the "Suspected Release" box as "yes," make sure you assign a Likelihood of Release value of 550 for the pathway.

If the distance to surface water is greater than 2 miles, do not evaluate the surface water migration pathway. Document the source of information in the text boxes below the surface water criteria list.

SURFACE WATER PATHWAY CRITERIA LIST	
SUSPECTED RELEASE	PRIMARY TARGETS
<p>Y N U e o n s / k</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is surface water nearby?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is waste quantity particularly large?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is the drainage area large?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is rainfall heavy?</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Is the infiltration rate low?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Are sources poorly contained or prone to runoff or flooding?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is a runoff route well defined (e.g., ditch or channel leading to surface water)?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is vegetation stressed along the probable runoff route?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Are sediments or water unnaturally discolored?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is wildlife unnaturally absent?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Has deposition of waste into surface water been observed?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is ground water discharge to surface water likely?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Does analytical or circumstantial evidence suggest surface water contamination?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other criteria? _____</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> SUSPECTED RELEASE?</p>	<p>Y N U e o n s / k</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is any target nearby? If yes:</p> <p><input type="checkbox"/> Drinking water intake</p> <p><input checked="" type="checkbox"/> Fishery</p> <p><input checked="" type="checkbox"/> Sensitive environment</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Has any intake, fishery, or recreational area been closed?</p> <p><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Does analytical or circumstantial evidence suggest surface water contamination at or downstream of a target?</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Does any target warrant sampling? If yes:</p> <p><input type="checkbox"/> Drinking water intake</p> <p><input checked="" type="checkbox"/> Fishery</p> <p><input checked="" type="checkbox"/> Sensitive environment</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Other criteria? _____</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> PRIMARY INTAKE(S) IDENTIFIED? NONE</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> PRIMARY FISHERY(IES) IDENTIFIED? CHATTAHOOCHEE RIVER</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED? CHATTAHOOCHEE RIVER</p>
<p>Summarize the rationale for Suspected Release (attach an additional page if necessary):</p> <p>A RELEASE TO SURFACE WATERS VIA SURFACE WATER PATHWAYS IS NOT INDICATED. OF GREATER CONCERN CONCERN IS THE POTENTIAL OF GROUND WATER TO CONTAMINATION TO AFFECT SURFACE WATERS.</p>	<p>Summarize the rationale for Primary Targets (attach an additional page if necessary):</p> <p>THE GOO CHATTAHOOCHEE RIVER IS DOWNGRADIENT OF THE SITE AND IS IS THE NORTHERN BORDER BORDER OF THE SITE.</p>

SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics

The surface water pathway includes three threats: Drinking Water Threat, Human Food Chain Threat, and Environmental Threat. Answer the questions at the top of the page. Refer to the Surface Water Pathway Criteria List (page 11) to hypothesize whether you suspect that a hazardous substance associated with the site has been released to surface water. Record the distance to surface water (the shortest overland drainage distance from a source to a surface water body). Record the flood frequency at the site (e.g., 100-yr, 200-yr). If the site is located in more than one floodplain, use the most frequent flooding event. Identify surface water use(s) along the surface water migration path and their distance(s) from the site.

Likelihood of Release (LR)

1. Suspected Release: Hypothesize based on professional judgment guided by the Surface Water Pathway Criteria List (page 11). If you suspect a release to surface water, use only Column A for this pathway and do not evaluate factor 2.

2. No Suspected Release: If you do not suspect a release, determine score based on the shortest overland drainage distance from a source to a surface water body. If distance to surface water is 2,500 feet or less, assign a score of 500. If distance to surface water is greater than 2,500 feet, determine score based on flood frequency. If you do not suspect a release to surface water, use only Column B to score this pathway.

Drinking Water Threat Targets (T)

3. List all drinking water intakes on downstream surface water bodies along the surface water migration path. Record the intake name, the type of water body on which the intake is located, the flow of the water body, and the number of people served by the intake (apportion the population if part of a blended system).

4. Primary Target Population: Evaluate populations served by all drinking water intakes that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Surface Water Pathway Criteria List (page 11) to make this determination. In the space provided, enter the population served by all intakes you suspect have been exposed to a hazardous substance from the site. If only the number of residences is known, use the average county residents per household (rounded up to the next integer) to determine population served. Multiply by 10 to determine the Primary Target Population score. Remember, if you do not suspect a release, there can be no primary target population.

5. Secondary Target Population: Evaluate populations served by all drinking water intakes within the target distance limit that you do not suspect have been exposed to a hazardous substance. Use PA Table 3 (page 13) and enter the population served by intakes for each flow category. If only the number of residences is known, use the average county residents per household (rounded to the nearest integer) to determine population served. Circle the assigned value for the population in each flow category and enter it in the column on the far-right side of the table. Sum the far-right column and enter the total as the Secondary Target Population factor score.

Gauging station data for many surface water bodies are available from USGS or other sources. In the absence of gauging station data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). The flow for lakes is determined by the sum of flows of streams entering or leaving the lake. Note that the flow category "mixing zone of quiet flowing rivers" is limited to 3 miles from the probable point of entry.

6. Nearest Intake represents the threat posed to the drinking water intake that is most likely to be exposed to a hazardous substance. If you have identified a primary target population, enter 50. Otherwise, assign the score from PA Table 3 (page 13) for the lowest-flowing water body on which there is an intake.

7. Resources: A score of 5 can generally be assigned as a default measure. Assign zero only if surface water within the target distance limit has no resource use.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Surface Water Pathway Criteria List, page 11)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Distance to surface water:	≤ 100 ft
Flood frequency:	UNKNOWN yrs
What is the downstream distance to the nearest drinking water intake?	> 15 miles
Nearest fishery? ≤ 1 miles	Nearest sensitive environment? ≤ 1 miles

LIKELIHOOD OF RELEASE

- SUSPECTED RELEASE:** If you suspect a release to surface water (see page 11), assign a score of 550. Use only column A for this pathway.
- NO SUSPECTED RELEASE:** If you do not suspect a release to surface water, use the table below to assign a score based on distance to surface water and flood frequency. Use only column B for this pathway.

Distance to surface water ≤ 2,500 feet	500
Distance to surface water > 2,500 feet, and	
Site in annual or 10-year floodplain	500
Site in 100-year floodplain	400
Site in 500-year floodplain	300
Site outside 500-year floodplain	100

A Suspected Release	B No Suspected Release	References
(550) 550		
	(500, 400, 300 = 100)	
(550) LR = 550	(500, 400, 300 = 100)	

DRINKING WATER THREAT TARGETS

- Record the water body type, flow (if applicable), and number of people served by each drinking water intake within the target distance limit. If there is no drinking water intake within the target distance limit, factors 4, 5, and 6 each receive zero scores.

Intake Name	Water Body Type	Flow	People Served
NONE		cfs	
		cfs	
		cfs	

- PRIMARY TARGET POPULATION:** If you suspect any drinking water intake listed above has been exposed to a hazardous substance from the site (see Surface Water Pathway Criteria List, page 11), list the intake name(s) and calculate the factor score based on the total population served.

NONE

0 people × 10 = 0

- SECONDARY TARGET POPULATION:** Determine the number of people served by drinking water intakes that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 3.

Are any intakes part of a blended system? Yes ☐ No ☒
If yes, attach a page to show apportionment calculations.

- NEAREST INTAKE:** If you have identified a primary target population for the drinking water threat (factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking water intake exists within the target distance limit, assign a score of zero.

- RESOURCES**

T = 5

0	
0	
(50, 20, 10, 2, 1 = 0)	(20, 10, 2, 1 = 0)
0	
(5 = 0)	(5 = 0)
5	
5	

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow (see PA Table 4)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category											Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Greater than 1,000,000	
< 10 cfs	<u>0</u>	20	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	<u>0</u>
10 to 100 cfs	<u>0</u>	2	1	1	2	5	16	52	163	521	1,633	5,214	16,325	<u>0</u>
> 100 to 1,000 cfs	<u>0</u>	1	0	0	1	1	2	5	16	52	163	521	1,633	<u>0</u>
> 1,000 to 10,000 cfs	<u>0</u>	0	0	0	0	0	1	1	2	5	16	52	163	<u>0</u>
> 10,000 cfs or Great Lakes	<u>0</u>	0	0	0	0	0	0	0	1	1	2	5	16	<u>0</u>
3-mile Mixing Zone	<u>0</u>	10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,663	<u>0</u>
Nearest Intake = <u>NONE</u>			Score = <u>0</u>											

**PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS
WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS**

Type of Surface Water Body		Dilution Weight
Water Body Type	OR Flow	
minimal stream	< 10 cfs	1
small to moderate stream	10 to 100 cfs	0.1
moderate to large stream	> 100 to 1,000 cfs	N/A
large stream to river	> 1,000 to 10,000 cfs	N/A
large river	> 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers	10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes	N/A	N/A

SURFACE WATER PATHWAY HUMAN FOOD CHAIN THREAT SCORESHEET

Likelihood of Release (LR)

LR is the same for all surface water pathway threats. Enter LR score from page 12.

Human Food Chain Threat Targets (T)

8. The only human food chain targets are fisheries. A fishery is an area of a surface water body from which food chain organisms are taken or could be taken for human consumption on a subsistence, sporting, or commercial basis. Food chain organisms include fish, shellfish, crustaceans, amphibians, and amphibious reptiles. Fisheries are delineated by changes in surface water body type (i.e., streams and rivers, lakes, coastal tidal waters, and oceans/Great Lakes) and whenever the flow characteristics of a stream or river change.

In the space provided, identify all fisheries within the target distance limit. Indicate the surface water body type and flow for each fishery. Gauging station flow data are available for many surface water bodies from USGS or other sources. In the absence of gauging station data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). The flow for lakes is determined by the sum of flows of streams entering or leaving the lake. Note that, if there are no fisheries within the target distance limit, the Human Food Chain Threat Targets score is zero.

9. **Primary fisheries** are any fisheries within the target distance limit that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Surface Water Pathway Criteria List (page 11) to make this determination. If you identify any primary fisheries, list them in the space provided, enter 300 as the Primary Fisheries factor score, and do not evaluate Secondary Fisheries. Note that if you do not suspect a release, there can be no primary fisheries.

10. **Secondary fisheries** are fisheries that you do not suspect have been exposed to a hazardous substance. Evaluate this factor only if fisheries are present within the target distance limit, but none is considered a primary fishery.

- A. If you suspect a release to surface water and have identified a secondary fishery but no primary fishery, assign a score of 210.
- B. If you do not suspect a release, evaluate this factor based on flow. In the absence of gauging station flow data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). Assign a Secondary Fisheries score from the table on the scoresheet using the lowest flow at any fishery within the target distance limit. (Dilution weight multiplier does not apply to PA evaluation of this factor.)

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

**SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT SCORESHEET**

LIKELIHOOD OF RELEASE

Enter Surface Water Likelihood of Release score from page 12.

LR =

A	B
Suspected Release	No Suspected Release
(140)	(500, 400, 300 or 100)
550	

Reference

HUMAN FOOD CHAIN THREAT TARGETS

8. Record the water body type and flow (if applicable) for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Fishery Name	Water Body Type	Flow
CHATAHOOCHEE RIVER	RIVER	~3000 cfs
		cfs
		cfs
		cfs
		cfs

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the primary fisheries:

CHATAHOOCHEE RIVER

10. SECONDARY FISHERIES

- A. If you suspect a release to surface water and have identified a secondary fishery but no primary fishery, assign a score of 210.
- B. If you do not suspect a release, assign a Secondary Fisheries score from the table below using the lowest flow at any fishery within the target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

T =

(300)	
300	
(210)	
0	
	(210, 30, = 12)
(300, 210, = 0)	(210, 30, 12 = 0)
300	

SURFACE WATER PATHWAY ENVIRONMENTAL THREAT SCORESHEET

Likelihood of Release (LR)

LR is the same for all surface water pathway threats. Enter LR score from page 12.

Environmental Threat Targets (T)

11. PA Table 5 (page 16) lists sensitive environments for the Surface Water Pathway Environmental Threat. In the space provided, identify all sensitive environments located within the target distance limit. Indicate the surface water body type and flow at each sensitive environment. Gauging station flow data for many surface water bodies are available from USGS or other sources. In the absence of gauging station data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). The flow for lakes is determined by the sum of flows of streams entering or leaving the lake. Note that if there are no sensitive environments within the target distance limit, the Environmental Threat Targets score is zero.

12. Primary sensitive environments are surface water sensitive environments within the target distance limit that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Surface Water Pathway Criteria List (page 11) to make this determination. If you identify any primary sensitive environments, list them in the space provided, enter 300 as the Primary Sensitive Environments factor score, and do not evaluate Secondary Sensitive Environments. Note that if you do not suspect a release, there can be no primary sensitive environments.

13. Secondary sensitive environments are surface water sensitive environments that you do not suspect have been exposed to a hazardous substance. Evaluate this factor only if surface water sensitive environments are present within the target distance limit, but none is considered a primary sensitive environment. Evaluate secondary sensitive environments based on flow.

- In the table provided, list all secondary sensitive environments on surface water bodies with flow of 100 cfs or less.

- 1) Use PA Table 4 (page 13) to determine the appropriate dilution weight for each.
- 2) Use PA Tables 5 and 6 (page 16) to determine the appropriate value for each sensitive environment type and for wetlands frontage.
- 3) For a sensitive environment that falls into more than one of the categories in PA Table 5, sum the values for each type to determine the environment value (e.g., a wetland with 1.5 miles frontage (value of 50) that is also a critical habitat for a Federally designated endangered species (value of 100) would receive a total value of 150).
- 4) For each sensitive environment, multiply the dilution weight by the environment type (or length of wetlands) value and record the product in the far-right column.
- 5) Sum the values in the far-right column and enter the total as the Secondary Sensitive Environments score. Do not evaluate part B of this factor.

- If all secondary sensitive environments are on surface water bodies with flows greater than 100 cfs, assign 10 as the Secondary Sensitive Environments score.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

**SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT SCORESHEET**

LIKELIHOOD OF RELEASE

Enter Surface Water Likelihood of Release score from page 12.

LR =

A	B
Suspected Release (100)	No Suspected Release (100,000,000 = 100)
550	

References

ENVIRONMENTAL THREAT TARGETS

11. Record the water body type and flow (if applicable) for each surface water sensitive environment within the target distance limit (see PA Tables 4 and 5). If there is no sensitive environment within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Environment Name	Water Body Type	Flow
CHATAHOOCHEE RIVER	RIVER	~3000 cfs
		cfs
		cfs
		cfs
		cfs

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate factor 13. List the primary sensitive environments:

CHATAHOOCHEE RIVER

13. SECONDARY SENSITIVE ENVIRONMENTS: If sensitive environments are present, but none is a primary sensitive environment, evaluate Secondary Sensitive Environments based on flow.

- A. For secondary sensitive environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow	Duration Weight (PA Table 4)	Environment Type and Value (PA Tables 5 and 6)	Total
cfs	x		=
cfs	x		=
cfs	x		=
cfs	x		=
cfs	x		=

Sum =

- B. If all secondary sensitive environments are located on surface water bodies with flows > 100 cfs, assign a score of 10.

T =

300	
0	
0	
300	

PA TABLE 5: SURFACE WATER AND AIR PATHWAY SENSITIVE ENVIRONMENTS VALUES

<i>Sensitive Environment</i>	<i>Assigned Value</i>
Critical habitat for Federally designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical Areas Identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes)	
National Monument (air pathway only)	
National Seashore Recreation Area	
National Lakeshore Recreation Area	75
Habitat known to be used by Federally designated or proposed endangered or threatened species	
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay, or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system	
Terrestrial areas utilized for breeding by large or dense aggregations of vertebrate animals (air pathway) or semi-aquatic foragers (surface water pathway)	
National river reach designated as Recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	25
State land designated for wildlife or game management	
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	5
State designated areas for protection/maintenance of aquatic life under the Clean Water Act	
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

**PA TABLE 6: SURFACE WATER PATHWAY
WETLANDS FRONTAGE VALUES**

<i>Total Length of Wetlands</i>	<i>Assigned Value</i>
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

· SURFACE WATER PATHWAY WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORES

Waste Characteristics (WC)

14. Waste Characteristics: Score is assigned from page 4. However, if a primary target has been identified for any surface water threat, assign either the score calculated on page 4 or a score of 32, whichever is greater.

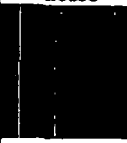
Surface Water Pathway Threat Scores

Fill in the matrix with the appropriate scores from the previous pages. To calculate the score for each threat: multiply the scores for LR, T, and WC; divide the product by 82,500; and round the result to the nearest integer. The Drinking Water Threat and Human Food Chain Threat are each subject to a maximum of 100. The Environmental Threat is subject to a maximum of 60. Enter the rounded threat scores in the far-right column.

Surface Water Pathway Score

Sum the individual threat scores to determine the Surface Water Pathway Score. If the sum is greater than 100, assign 100.

**SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY**

WASTE CHARACTERISTICS		A <i>Suspected Release</i>	B <i>No Suspected Release</i>
14. A. If you have identified any primary target for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.		(100, 32) = 32 32	
B. If you have NOT identified any primary target for surface water, assign the waste characteristics score calculated on page 4.		(100, 32) = 100 0	(100, 32) = 100
WC =		32	

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score (from page 12)	Targets (T) Score (pages 12, 14, 15)	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score $LR \times T \times WC$ / 82,500
Drinking Water	550	5	32	1.07 <small>(subject to a maximum of 100)</small>
Human Food Chain	550	300	32	64 <small>(subject to a maximum of 100)</small>
Environmental	550	300	32	64 <small>(subject to a maximum of 60)</small>

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

<small>(subject to a maximum of 100)</small> 100
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SOIL EXPOSURE PATHWAY CRITERIA LIST

Areas of surficial contamination can generally be assumed. This "Criteria List" helps guide the process of developing a hypothesis concerning the exposure of specific targets to a hazardous substance at the site. Use the "Resident Population" section to evaluate site and source conditions that may help identify targets likely to be exposed to a hazardous substance. The check-boxes record your professional judgment. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypothesis, list them at the bottom of the page or attach an additional page.

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question.

SOIL EXPOSURE PATHWAY CRITERIA LIST

SUSPECTED CONTAMINATION	RESIDENT POPULATION
Surficial contamination can generally be assumed.	<p>Y N U e o n s k</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is any residence, school, or daycare facility on or within 200 feet of an area of suspected contamination?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is any residence, school, or daycare facility located on adjacent land previously owned or leased by the site owner/operator?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Is there a migration route that might spread hazardous substances near residences, schools, or daycare facilities?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Have onsite or adjacent residents or students reported adverse health effects, exclusive of apparent drinking water or air contamination problems?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Does any neighboring property warrant sampling?</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Other criteria? _____</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> RESIDENT POPULATION IDENTIFIED?</p>

Summarize the rationale for Resident Population (attach an additional page if necessary):

DISTANCE	AREA (MILE ²)	EST. POPULATION
0 - 1/4 MILE	.1963	31-100 WORKERS (NO RESIDENCES)
1/4 - 1/2 MILE	.5890	~766
1/2 - 1 MILE	2.3562	~3063
1 - 2 MILE	9.4248	~12,252
2 - 3 MILE	15.7080	~20,420
3 - 4 MILE	21.9911	~28,589
		POPULATION AREA
COBB COUNTY POPULATION (1992) = 464,600		346 MILE ²
FULTON COUNTY POPULATION (1992) = 677,000		527 MILE ²
∴ BOTH COUNTIES ~1300 PERSONS / MILE ² .		

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics

Answer the questions at the top of the page. Identify people who may be exposed to a hazardous substance because they work at the facility, or reside or attend school or daycare on or within 200 feet of an area of suspected contamination. If the site is active, estimate the number of full and part-time workers. Note that evaluation of targets is based on current site conditions.

Likelihood of Exposure (LE)

1. Suspected Contamination: Areas of surficial contamination are present at most sites, and a score of 550 can generally be assigned as a default measure. Assign zero, which effectively eliminates the pathway from further consideration, only if there is no surficial contamination; reliable analytical data are generally necessary to make this determination.

Resident Population Threat Targets (T)

2. Resident Population corresponds to "primary targets" for the migration pathways. Use professional judgment guided by the Soil Exposure Pathway Criteria List (page 18) to determine if there are people living or attending school or daycare on or within 200 feet of areas of suspected contamination. Record the number of people identified as resident population and multiply by 10 to determine the Resident Population factor score.

3. Resident Individual: Assign 50 if you have identified a resident population; otherwise, assign zero.

4. Workers: Estimate the number of full and part-time workers at this facility and adjacent facilities where contamination is also suspected. Assign a score for the Workers factor from the table.

5. Terrestrial Sensitive Environments: In the table provided, list each terrestrial sensitive environment located on an area of suspected contamination. Use PA Table 7 (page 20) to assign a value for each. Sum the values and assign the total as the factor score.

6. Resources: A score of 5 can generally be assigned as a default measure. Assign zero only if there is no land resource use on an area of suspected contamination.

Sum the target scores.

Waste Characteristics (WC)

7. Enter the WC score determined on page 4.

Resident Population Threat Score: Multiply the scores for LE, T, and WC. Divide the product by 82,500. Round the result to the nearest integer. If the result is greater than 100, assign 100.

Nearby Population Threat Score: Do not evaluate this threat if you gave a zero score to Likelihood of Exposure. Otherwise, assign a score based on the population within a 1-mile radius (use the same 1-mile radius population you evaluate for air pathway population targets):

<u>Population Within One Mile</u>	<u>Nearby Population Threat Score</u>
< 10,000	1
10,000 to 50,000	2
> 50,000	4

Soil Exposure Pathway Score: Sum the Resident Population Threat score and the Nearby Population Threat score, subject to a maximum of 100.

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics	
Do any people live on or within 200 ft of areas of suspected contamination?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Do any people attend school or daycare on or within 200 ft of areas of suspected contamination?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Is the facility active? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, estimate the number of workers: <u>8</u>	

LIKELIHOOD OF EXPOSURE

1. SUSPECTED CONTAMINATION: Surficial contamination can generally be assumed, and a score of 550 assigned. Assign zero only if the absence of surficial contamination can be confidently demonstrated.

LE =

Suspected Contamination (100 = 0)
0

References

RESIDENT POPULATION THREAT TARGETS

2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or daycare on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 18).

0 people x 10 =

3. RESIDENT INDIVIDUAL: If you have identified a resident population (factor 2), assign a score of 50; otherwise, assign a score of 0.

4. WORKERS: Use the following table to assign a score based on the total number of workers at the facility and nearby facilities with suspected contamination:

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Use PA Table 7 to assign a value for each terrestrial sensitive environment on an area of suspected contamination:

Terrestrial Sensitive Environment Type	Value
NONE	

Sum =

RESOURCES

T =

0
0
5
0
5
10

WASTE CHARACTERISTICS

7. Assign the waste characteristics score calculated on page 4.

WC =

(100, 22, or 10)
32

RESIDENT POPULATION THREAT SCORE:

$$\frac{LE \times T \times WC}{82,500}$$

(subject to a maximum of 100)
0

NEARBY POPULATION THREAT SCORE:

(4, 2, or 1)
2

SOIL EXPOSURE PATHWAY SCORE:

Resident Population Threat + Nearby Population Threat

(subject to a maximum of 100)
2

**PA TABLE 7: SOIL EXPOSURE PATHWAY
TERRESTRIAL SENSITIVE ENVIRONMENT VALUES**

<i>Terrestrial Sensitive Environment</i>	<i>Assigned Value</i>
Terrestrial critical habitat for Federally designated endangered or threatened species	100
National Park	
Designated Federal Wilderness Area	
National Monument	
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species	75
National Preserve (terrestrial)	
National or State terrestrial Wildlife Refuge	
Federal land designated for protection of natural ecosystems	
Administratively proposed Federal Wilderness Area	
Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	
Terrestrial habitat used by State designated endangered or threatened species	50
Terrestrial habitat used by species under review for Federal designated endangered or threatened status	
State lands designated for wildlife or game management	25
State designated Natural Areas	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	

AIR PATHWAY CRITERIA LIST

This "Criteria List" helps guide the process of developing a hypothesis as to whether a release to the air is likely to be detected. The check-boxes record your professional judgment. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypothesis, list them at the bottom of the page or attach an additional page.

The "Suspected Release" section identifies several conditions that could provide insight as to whether a release from the site is likely to be detected. If a release is suspected, primary targets are any residents, workers, students, and sensitive environments on or within $\frac{1}{4}$ mile of the site.

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question. If you check the "Suspected Release" box as "yes," make sure you assign a Likelihood of Release value of 550 for the pathway.



AIR PATHWAY CRITERIA LIST	
SUSPECTED RELEASE	PRIMARY TARGETS
<div><div>Y e a</div><div>N o n</div><div>U n k n o w n</div></div> <div><div><input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/></div><div>Are odors currently reported?</div><div>PREVIOUS ODOR COMPLAINTS</div><div><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></div><div>Has release of a hazardous substance to the air been directly observed?</div><div>YES, FLARE INSTALLED TO MANAGE METHANE</div><div><input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/></div><div>Are there reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air?</div><div><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></div><div>Does analytical or circumstantial evidence suggest a release to the air?</div><div><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></div><div>Other criteria? <u>FLARE INSTALLED</u></div><div><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></div><div>SUSPECTED RELEASE?</div></div>	<div>If you suspect a release to air, evaluate all populations and sensitive environments within 1/4 mile (including those onsite) as primary targets.</div>
<div>Summarize the rationale for Suspected Release (attach an additional page if necessary):</div> <div>METHANE LEVELS OF 100% LEL WERE MEASURED IN MONITORING WELLS. SANIFILL HAS SINCE INSTALLED AND IS OPERATING A FLARE TO MANAGE THE METHANE AND OTHER LANDFILL GASES. THEREFORE, ALTHOUGH THERE ARE RELEASES, THEY ARE BEING CONTROLLED AND THERE ARE NO PRIMARY TARGETS JUST SECONDARY TARGETS.</div>	

AIR PATHWAY SCORESHEET

Pathway Characteristics

Answer the questions at the top of the page. Refer to the Air Pathway Criteria List (page 21) to hypothesize whether you suspect that a hazardous substance release to the air could be detected. Due to dispersion, releases to air are not as persistent as releases to water migration pathways and are much more difficult to detect. Develop your hypothesis concerning the release of hazardous substances to air based on "real time" considerations. Record the distance (in feet) from any source to the nearest regularly occupied building.

Likelihood of Release (LR)

1. Suspected Release: Hypothesize based on professional judgment guided by the Air Pathway Criteria List (page 21). If you suspect a release to air, use only Column A for this pathway and do not evaluate factor 2.

2. No Suspected Release: If you do not suspect a release, enter 500 and use only Column B for this pathway.

Targets (T)

3. Primary Target Population: Evaluate populations subject to exposure from release of a hazardous substance from the site. If you suspect a release, the resident, student, and worker populations on and within $\frac{1}{4}$ mile of the site are considered primary target population. If only the number of residences is known, use the average county residents per household (rounded up to the next integer) to determine the population. In the space provided, enter this population. Multiply the population by 10 to determine the Primary Target Population score. Note that if you do not suspect a release, there can be no primary target population.

4. Secondary Target Population: Evaluate populations in distance categories not suspected to be subject to exposure from release of a hazardous substance from the site. If you suspect a release, residents, students, and workers in the $\frac{1}{4}$ - to 4-mile distance categories are secondary target population. If you do not suspect a release, all residents, students, and workers onsite and within 4 miles are considered secondary target population.

Use PA Table 8 (page 23). Enter the population in each secondary target population distance category, circle the assigned value, and record it on the far-right side of the table. Sum the far-right column and enter the total as the Secondary Target Population factor score.

5. Nearest Individual represents the threat posed to the person most likely to be exposed to a hazardous substance release from the site. If you have identified a primary target population, enter 50. Otherwise, assign the score from PA Table 8 (page 23) for the closest distance category in which you have identified a secondary target population.

6. Primary Sensitive Environments: If a release is suspected, all sensitive environments on or within $\frac{1}{4}$ mile of the site are considered primary targets. List them and assign values for sensitive environment type (from PA Table 5, page 16) and/or wetland acreage (from PA Table 9, page 23). Sum the values and enter the total as the factor score.

7. Secondary Sensitive Environments: If a release is suspected, sensitive environments in the $\frac{1}{4}$ - to $\frac{1}{2}$ -mile distance category are secondary targets; greater distances need not be evaluated because distance weighting greatly diminishes the impact on site score. If you do not suspect a release, all sensitive environments on and within $\frac{1}{2}$ mile of the site are considered secondary targets. List each secondary sensitive environment on PA Table 10 (page 23) and assign a value to each using PA Tables 5 and 9. Multiply each value by the indicated distance weight and record the product in the far-right column. Sum the products and enter the total as the factor score.

8. Resources: A score of 5 can generally be assigned as a default measure. Assign zero only if there is no land resource use within $\frac{1}{2}$ mile.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

Waste Characteristics (WC)

9. Waste Characteristics: Score is assigned from page 4. However, if you have identified any primary target for the air pathway, assign either the score calculated on page 4 or a score of 32, whichever is greater.

Air Pathway Score: Multiply the scores for LR, T, and WC. Divide the product by 82,500. Round the result to the nearest integer. If the result is greater than 100, assign 100.

AIR PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Air Pathway Criteria List, page 21)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Distance to the nearest individual:	ONSITE ft

LIKELIHOOD OF RELEASE	A	B	References
	Suspected Release (500)	No Suspected Release (500)	
1. SUSPECTED RELEASE: If you suspect a release to air (see page 21), assign a score of 550. Use only column A for this pathway.	550		
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500. Use only column B for this pathway.			
	LR = 550		

TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a suspected release of hazardous substances to the air. <u>0</u> people x 10 =	0		
4. SECONDARY TARGET POPULATION: Determine the number of people not suspected to be exposed to a release to air, and assign the total population score using PA Table 8.	27		
5. NEAREST INDIVIDUAL: If you have identified any Primary Target Population for the air pathway, assign a score of 50; otherwise, assign the Nearest Individual score from PA Table 8.	20		
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 9) for environments subject to exposure from a suspected release to the air.	0		
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.	0		
8. RESOURCES	5		
	T = 52		

WASTE CHARACTERISTICS		
9. A. If you have identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	0	
B. If you have NOT identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4.	32	
	WC = 32	

AIR PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82,500}$$

(adjusted to a maximum of 100)
11.09

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category													Population Value	
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Greater than 1,000,000			
Onsite	WORKERS 8	20	1	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	1		
>0 to 1/4 mile	WORKERS 31-100	20	1	1	1	4	13	41	130	408	1,303	4,081	13,034	40,811	1		
> 1/4 to 1/2 mile	766	2	0	0	1	1	3	9	28	88	282	882	2,815	8,815	3		
> 1/2 to 1 mile	3063	1	0	0	0	1	1	3	8	26	83	261	834	2,612	8		
> 1 to 2 miles	12252	0	0	0	0	0	1	1	3	8	27	83	266	833	8		
> 2 to 3 miles	20420	0	0	0	0	0	1	1	1	4	12	38	120	376	4		
> 3 to 4 miles	28589	0	0	0	0	0	0	1	1	2	7	23	73	229	2		
Nearest Individual =		20														Score =	27

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

	Distance	Sensitive Environment Type and Value (from PA Table 5 or 9)		Product
Distance	Weight			
Onsite	0.10	x		
		x		
0-1/4 mi	0.025	x		
		x		
		x		
1/4-1/2mi	0.0054	x		
		x		
		x		
		x		
Total Environments Score =				0

SITE SCORE CALCULATION

In the column labeled **S**, record the Ground Water Pathway score, the Surface Water Pathway score, the Soil Exposure Pathway score, and the Air Pathway score. Square each pathway score and record the result in the **S²** column. Sum the squared pathway scores. Divide the sum by 4, and take the square root of the result to obtain the **Site Score**.

SUMMARY

Answer the summary questions, which ask for a qualitative evaluation of the relative risk of targets being exposed to a hazardous substance from the site. You may find your responses to these questions a good cross-check against the way you scored the individual pathways. For example, if you scored the ground water pathway on the basis of no suspected release and secondary targets only, yet your response to question #1 is "yes," this presents apparently conflicting conclusions that you need to reconsider and resolve. Your answers to the questions on page 24 should be consistent with your evaluations elsewhere in the PA scoresheets package.

SITE SCORE CALCULATION

	S	S ²
GROUND WATER PATHWAY SCORE (S _{gw}):	2.77	7.67
SURFACE WATER PATHWAY SCORE (S _{sw}):	100	10000
SOIL EXPOSURE PATHWAY SCORE (S _s):	2	4
AIR PATHWAY SCORE (S _a):	11.09	122.99
SITE SCORE:	$\sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}}$	
	50.34	

SUMMARY

	YES	NO
1. Is there a high possibility of a threat to any nearby drinking water well(s) by migration of a hazardous substance in ground water? A. If yes, identify the well(s). _____ B. If yes, how many people are served by the threatened well(s)? _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Is there a high possibility of a threat to any of the following by hazardous substance migration in surface water? A. Drinking water intake B. Fishery C. Sensitive environment (wetland, critical habitat, others) D. If yes, identify the target(s). <u>CHATAHOOCHEE RIVER</u>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3. Is there a high possibility of an area of surficial contamination within 200 feet of any residence, school, or daycare facility? If yes, identify the property(ies) and estimate the associated population(s). _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Are there public health concerns at this site that are not addressed by PA scoring considerations? If yes, explain: _____ _____ _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>

APPENDIX A
SITE INVESTIGATION SCORE SHEETS

SITE INSPECTION WORKSHEETS

CERCLIS IDENTIFICATION NUMBER

GAD984288191

SITE LOCATION			
SITE NAME: LEGAL, COMMON, OR DESCRIPTIVE NAME OF SITE Southern States Landfill, Inc. (AKA Sanifill)			
STREET ADDRESS, ROUTE, OR SPECIFIC LOCATION IDENTIFIER 13 Collins Road			
CITY Atlanta	STATE GA	ZIP CODE 30318	TELEPHONE (404)
COORDINATES: LATITUDE and LONGITUDE 33° 49' 30.0" 84° 27' 57.0"		TOWNSHIP, RANGE, AND SECTION NA	

OWNER/OPERATOR IDENTIFICATION					
OWNER Raymond Cash, President			OPERATOR RANDY CHASTAIN		
OWNER ADDRESS 4696 Oakdale Road			OPERATOR ADDRESS SANIFILL P.O. Box 94143		
CITY Smyrna			CITY ATLANTA		
STATE GA	ZIP CODE 30080	TELEPHONE (404) 435-9962	STATE GA	ZIP CODE 30337	TELEPHONE (404) 799-1273

SITE EVALUATION		
AGENCY/ORGANIZATION GA EPD Hazardous Waste		
INVESTIGATOR Madeleine Kellam		
CONTACT Madeleine Kellam, GA EPD		
ADDRESS 1154 E. Tower 205 Butler St. SE		
CITY Atlanta	STATE GA	ZIP CODE 30334
TELEPHONE (404) 656-2833		

GENERAL INFORMATION

Site Description and Operational History: Provide a brief description of the site and its operational history. State the site name, owner, operator, type of facility and operations, size of property, active or inactive status, and years of waste generation. Summarize waste treatment, storage, or disposal activities that have or may have occurred at the site; note whether these activities are documented or alleged. Identify all source types and prior spills, floods, or fires. Summarize highlights of the PA and other investigations. Cite references.

The Southern States Landfill site is located on the western edge of the Atlanta City and Fulton County limits on the banks of the Chattahoochee River. It is bordered on the north by the Chattahoochee River, the southeast by Chambers Landfill, the west by Blue Circle Cement plant and on the east by a pair of CSX rail lines, sewage treatment plant, water treatment plant and other industrial facilities. The total property area consists of approximately thirty nine (39) acres. Primary land use in the area is heavily industrial and commercial use with limited residential use.

Previous to 1984, the site was mined for clay. The time frame for the mining activities at this time is unknown. No other pre-landfilling use is known at this time.

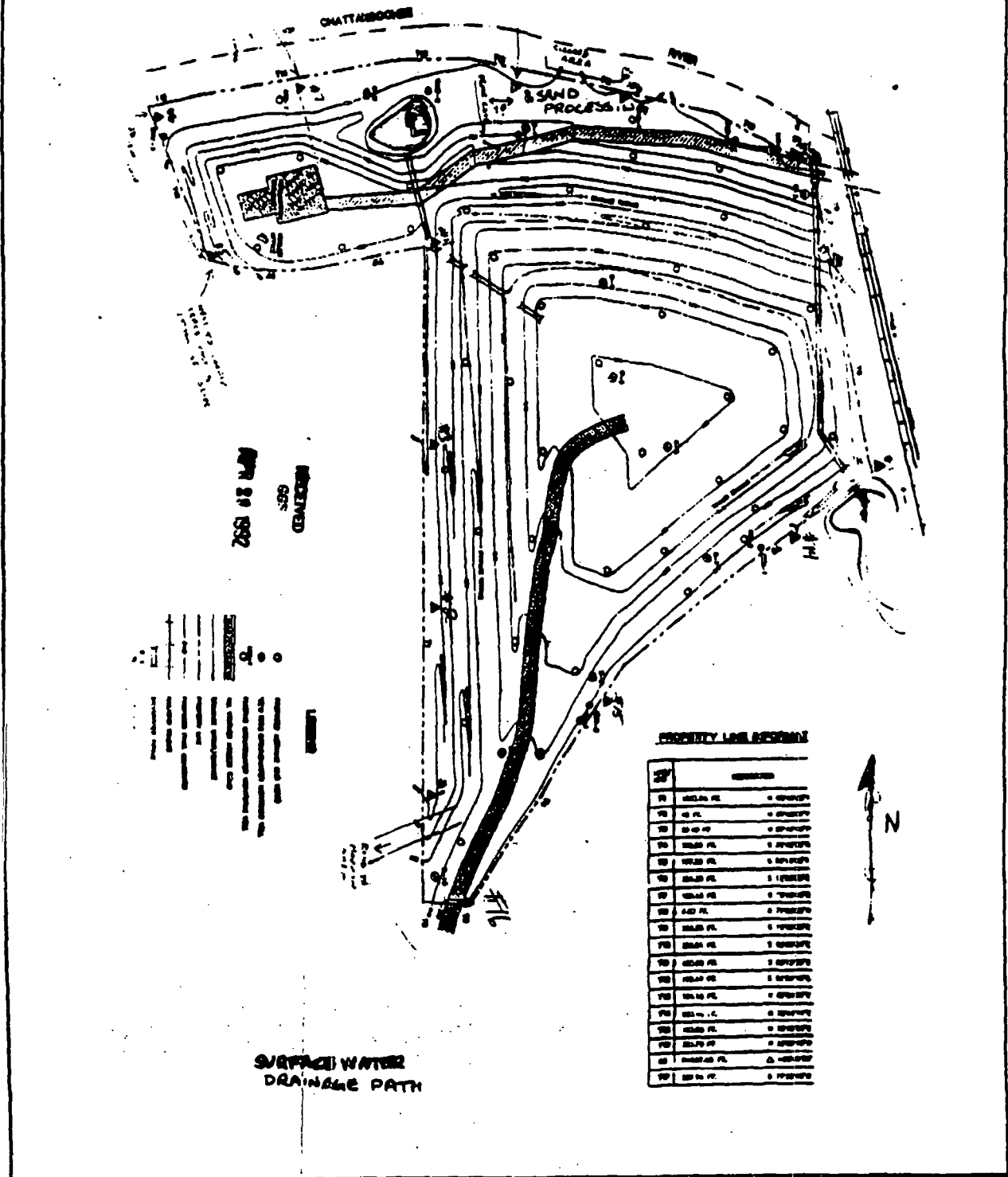
Permit Number 060-0100 was issued November 5, 1975 to Southern States Landfill, Inc. authorizing the operation of a sanitary landfill. The landfill was not developed until R. M. Cash and Sons, Inc. purchased the property in June, 1984. Landfilling operations began in October of 1984.

Since beginning operations, the landfill has accepted putrescible and nonputrescible commercial and residential solid waste. Regulated hazardous wastes were not accepted at the landfill. Any amount of hazardous substance should not be greater than that found in typical municipal sanitary landfills.

The site was owned and operated by Southern States Landfill, Inc. from its opening in 1984 until mid 1990, when it was sold to Sanifill, Inc., the present owner and operator. Waste was deposited in sequential manner beginning at the northeast corner near the railroad. Sometime after initial operations began, a construction and demolition waste section was added near the river at the northwestern corner of the site.

GENERAL INFORMATION (continued)

Site Sketch: Provide a sketch of the site. Indicate all pertinent features of the site and nearby environments including sources of wastes, areas of visible and buried wastes, buildings, residences, access roads, parking areas, fences, fields, drainage patterns, water bodies, vegetation, wells, sensitive environments, and other features.



GENERAL INFORMATION (continued)

Source Description: Include description of containment per pathway for ground water (see HRS Table 3-2), surface water (see HRS Table 4-2), and air (see HRS Tables 6-3 and 6-9).

The source is a 39-acre sanitary landfill occupying a former clay mining excavation on the bank of the Chattahoochee River. The site is unlined (i.e. no ground water containment) and a release to groundwater is suspected. Leachate was observed at numerous locations on the site, suggesting soil contamination (despite daily soil cover). In addition, leachate was observed entering surface water, for eventual discharge to the Chattahoochee River. (Surface water on the site is directed to the River.) Air emissions at the site are controlled by a vacuum extraction system with a flare.

Hazardous Waste Quantity (HWQ) Calculation: SI Tables 1 and 2 (See HRS Tables 2-5, 2-6, and 5-2).

The only tier which could be evaluated at this site was tier D (Area).

Landfill - 39 acres - HWQ=100

Attach additional pages, if necessary

HWQ = 100

GROUND WATER PATHWAY GROUND WATER USE DESCRIPTION

Describe Ground Water Use within 4 Miles of the Site:

Describe generalized stratigraphy, aquifers, municipal and private wells

The Southern States Landfill is underlain by an unconfined fractured bedrock/sandstone aquifer. Groundwater in such aquifers is usually encountered at depths between 10 and 600 feet. The landfill is unlined, and a release to groundwater is suspected based on groundwater monitoring data. There are no municipal supply wells within the 4-mile radius of the site. There are five (5) domestic wells within the 4-mile radius; however all are over 1 mile distant from the site. Ground water use in this area is minimal.

Show Calculations of Ground Water Drinking Water Populations for each Aquifer:

Provide apportionment calculations for blended supply systems.

County average number of persons per household: 2.10 Reference SI Table 6a

	# Wells	Population
0-1/4 mile	0	0
1/4-1/2 mile	0	0
1/2 - 1 mile	0	0
1 - 2 miles	2	0.7
2 - 3 miles	2	0.7
3 - 4 miles	1	0.3
		<u>1.7</u>

GROUND WATER PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to the aquifer, assign a score of 550. Record observed release substances on SI Table 4.			
2. POTENTIAL TO RELEASE: Depth to aquifer: _____ feet. If sampling data do not support a release to the aquifer, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Optionally, evaluate potential to release according to HRS Section 3.			
LR =		550	

TARGETS

<p>Are any wells part of a blended system? Yes _____ No <u>✓</u></p> <p>If yes, attach a page to show apportionment calculations.</p>			
<p>3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates that any target drinking water well for the aquifer has been exposed to a hazardous substance from the site, evaluate the factor score for the number of people served (SI Table 5).</p> <p>Level I: _____ people x 10 = _____</p> <p>Level II: _____ people x 1 = _____ Total =</p>	0		
<p>4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water wells for the aquifer or overlying aquifers that are not exposed to a hazardous substance from the site; record the population for each distance category in SI Table 6a or 6b. Sum the population values and multiply by 0.1.</p>	0.17		
<p>5. NEAREST WELL: Assign a score of 50 for any Level I Actual Contamination Targets for the aquifer or overlying aquifer. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the Nearest Well score from SI Table 6a or 6b. If no drinking water wells exist within 4 miles, assign 0.</p>	5		
<p>6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA for the aquifer, or if a ground water observed release has occurred within a WHPA, assign a score of 20; assign 5 if neither condition applies but a WHPA is within 4 miles; otherwise assign 0.</p>	0		
<p>7. RESOURCES: Assign a score of 5 if one or more ground water resource applies; assign 0 if none applies.</p> <ul style="list-style-type: none"> • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Supply for commercial aquaculture • Supply for a major or designated water recreation area, excluding drinking water use 	0		
Sum of Targets T=		5.17	

GROUND WATER PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS	Score	Data Type	Does not Apply
8. If any Actual Contamination Targets exist for the aquifer or overlying aquifers, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated for sources available to migrate to ground water.	100		
9. Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.	100		
10. Multiply the ground water toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: (from HRS Table 2-7)	$100 \times 100 = 10,000$ $WC = 10$		

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to <10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

WC = 10

Multiply LR by T and by WC. Divide the product by 82,500 to obtain the ground water pathway score for each aquifer. Select the highest aquifer score. If the pathway score is greater than 100, assign 100.

GROUND WATER PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82,500}$$

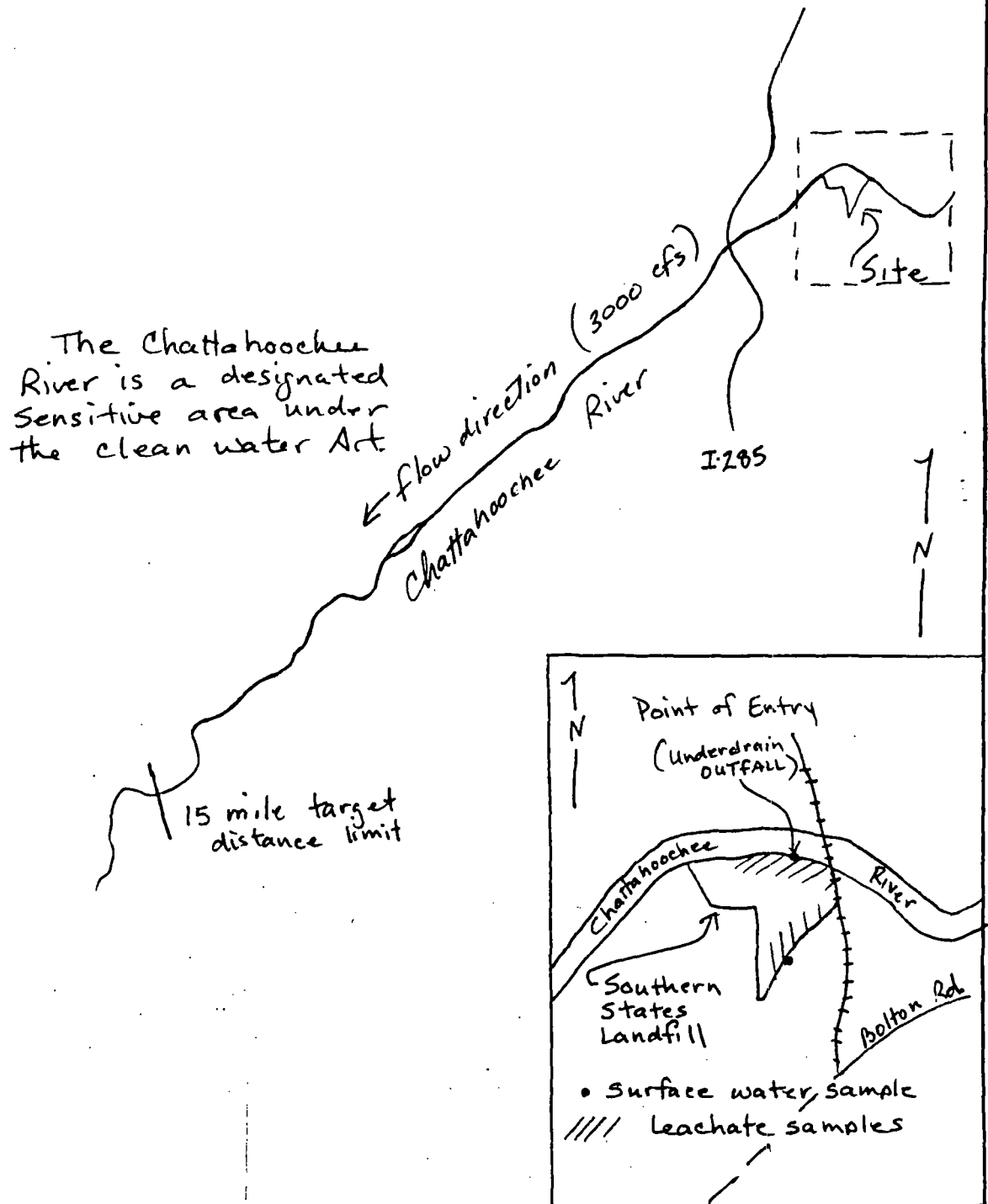
0.345

(Maximum of 100)

SURFACE WATER PATHWAY

Sketch of the Surface Water Migration Route:

Label all surface water bodies. Include runoff route and drainage direction, probable point of entry, and 15-mile target distance limit. Mark sample locations, intakes, fisheries, and sensitive environments. Indicate flow directions, tidal influence, and rate.



SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET

LIKELIHOOD OF RELEASE- OVERLAND/FLOOD MIGRATION

	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7.	550		
2. POTENTIAL TO RELEASE: Distance to surface water: _____ (feet) If sampling data do not support a release to surface water in the watershed, use the table below to assign a score from the table below based on distance to surface water and flood frequency.			

Distance to surface water <2500 feet	500
Distance to surface water >2500 feet, and:	
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

Optionally, evaluate surface water potential to release according to HRS Section 4.1.2.1.2

LR = 550

LIKELIHOOD OF RELEASE GROUND WATER TO SURFACE WATER MIGRATION

	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7.	550		
<p>NOTE: Evaluate ground water to surface water migration only for a surface water body that meets all of the following conditions:</p> <ol style="list-style-type: none"> 1) A portion of the surface water is within 1 mile of site sources having a containment factor greater than 0. 2) No aquifer discontinuity is established between the source and the above portion of the surface water body. 3) The top of the uppermost aquifer is at or above the bottom of the surface water. <p>Elevation of top of uppermost aquifer _____</p> <p>Elevation of bottom of surface water body _____</p>			
2. POTENTIAL TO RELEASE: Use the ground water potential to release. Optionally, evaluate surface water potential to release according to HRS Section 3.1.2.			

LR = 550

SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET (CONTINUED)

DRINKING WATER THREAT TARGETS	Score	Data Type	Refs																
<p>Record the water body type, flow, and number of people served by each drinking water intake within the target distance limit in the watershed. If there is no drinking water intake within the target distance limit, assign 0 to factors 3, 4, and 5.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Intake Name</th> <th style="text-align: left; padding: 2px;">Water Body Type</th> <th style="text-align: left; padding: 2px;">Flow</th> <th style="text-align: left; padding: 2px;">People Served</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>Are any intakes part of a blended system? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, attach a page to show apportionment calculations.</p> <p>3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates a drinking water intake has been exposed to a hazardous substance from the site, list the intake name and evaluate the factor score for the drinking water population (SI Table 8).</p> <p>_____</p> <p>Level I: _____ people x 10 = _____ Level II: _____ people x 1 = _____ Total = 0</p>	Intake Name	Water Body Type	Flow	People Served													0		
Intake Name	Water Body Type	Flow	People Served																
<p>4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water intakes for the watershed that have not been exposed to a hazardous substance from the site. Assign the population values from SI Table 9. Sum the values and multiply by 0.1.</p>																			
<p>5. NEAREST INTAKE: Assign a score of 50 for any Level I Actual Contamination Drinking Water Targets for the watershed. Assign a score of 45 if there are Level II targets for the watershed, but no Level I targets. If no Actual Contamination Drinking Water Targets exist, assign a score for the intake nearest the PPE from SI Table 9. If no drinking water intakes exist, assign 0.</p>																			
<p>6. RESOURCES: Assign a score of 5 if one or more surface water resource applies; assign 0 if none applies.</p> <ul style="list-style-type: none"> • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Major or designated water recreation area, excluding drinking water use 																			
SUM OF TARGETS T= 0																			

SURFACE WATER PATHWAY (continued) HUMAN FOOD CHAIN THREAT WORKSHEET

HUMAN FOOD CHAIN THREAT TARGETS

Score Data
Type Refs

Record the water body type and flow for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a score of 0 at the bottom of this page.

Fishery Name _____	Water Body _____	Flow _____ cfs	
Species _____	Production _____	lbs/yr	
Species _____	Production _____	lbs/yr	
Fishery Name _____	Water Body _____	Flow _____ cfs	
Species _____	Production _____	lbs/yr	
Species _____	Production _____	lbs/yr	
Fishery Name _____	Water Body _____	Flow _____ cfs	
Species _____	Production _____	lbs/yr	
Species _____	Production _____	lbs/yr	

FOOD CHAIN INDIVIDUAL

7. ACTUAL CONTAMINATION FISHERIES:

If analytical evidence indicates that a fishery has been exposed to a hazardous substance with a bioaccumulation factor greater than or equal to 500 (SI Table 10), assign a score of 50 if there is a Level I fishery. Assign 45 if there is a Level II fishery, but no Level I fishery.

8. POTENTIAL CONTAMINATION FISHERIES:

If there is a release of a substance with a bioaccumulation factor greater than or equal to 500 to a watershed containing fisheries within the target distance limit, but there are no Level I or Level II fisheries, assign a score of 20.

If there is no observed release to the watershed, assign a value for potential contamination fisheries from the table below using the lowest flow at all fisheries within the target distance limit:

Lowest Flow	FCI Value
<10 cfs	20
10 to 100 cfs	2
>100 cfs, coastal tidal waters, oceans, or Great Lakes	0
3-mile mixing zone in quiet flowing river	10

FCI Value =

SUM OF TARGETS T =

SURFACE WATER PATHWAY (continued) ENVIRONMENTAL THREAT WORKSHEET

When measuring length of wetlands that are located on both sides of a surface water body, sum both frontage lengths. For a sensitive environment that is more than one type, assign a value for each type.

ENVIRONMENTAL THREAT TARGETS				Score	Data Type	Refs	
Record the water body type and flow for each surface water sensitive environment within the target distance (see SI Table 12). If there is no sensitive environment within the target distance limit, assign a score of 0 at the bottom of the page.							
Environment Name	Water Body Type	Flow					
			cfs				
			cfs				
			cfs				
			cfs				
9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14).							
Environment Name	Environment Type and Value (SI Tables 13 & 14)	Multiplier (10 for Level I, 1 for Level II)	Product				
Fishery - Clean Water Act	100	x 1	= 100				
		x	=				
		x	=				
		x	=				
Sum =							
10. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS:							
Flow	Dilution Weight (SI Table 12)	Environment Type and Value (SI Tables 13 & 14)	Pot. Cont.				Product
3000 cfs	.001 x	100 x	0.1 =				30
cfs	x	x	0.1 =				
cfs	x	x	0.1 =				
cfs	x	x	0.1 =				
Sum =							
T =				100			

SURFACE WATER PATHWAY (concluded) **WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY**

WASTE CHARACTERISTICS

Score

14. If an Actual Contamination Target (drinking water, human food chain, <u>or</u> environmental threat) exists for the watershed, assign the calculated hazardous waste quantity score, or a score of 100, whichever is greater.				100
15. Assign the highest value from SI Table 7 (observed release) or SI Table 3 (no observed release) for the hazardous substance waste characterization factors below. Multiply each by the surface water hazardous waste quantity score and determine the waste characteristics score for each threat.				
	Substance Value	HWO	Product	WC Score (from Table) (Maximum of 100)
Drinking Water Threat Toxicity/Persistence	40	100	4000	6
Food Chain Threat Toxicity/Persistence Bioaccumulation	2000	100	2x10 ⁵	10
Environmental Threat Ecotoxicity/Persistence/ Ecobioaccumulation	2x10 ⁶	100	2x10 ⁸	100

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to <10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 to <1E + 09	100
1E + 09 to <1E + 10	180
1E + 10 to <1E + 11	320
1E + 11 to <1E + 12	560
1E + 12 or greater	1000

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score <u>LR x T x WC</u> 82,500
Drinking Water	550	0	6	(maximum of 100) 0
Human Food Chain	550	0	10	(maximum of 100) 0
Environmental	550	100	100	(maximum of 80) 66.7

SURFACE WATER PATHWAY SCORE
 (Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

(maximum of 100)

60

SOIL EXPOSURE PATHWAY WORKSHEET RESIDENT POPULATION THREAT

LIKELIHOOD OF EXPOSURE

	Score	Data Type	Refs
1. OBSERVED CONTAMINATION: If evidence indicates presence of observed contamination (depth of 2 feet or less), assign a score of 550; otherwise, assign a 0. Note that a likelihood of exposure score of 0 results in a soil exposure pathway score of 0.			
LE =	0		

TARGETS

<p>2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or day care on or within 200 feet of areas of observed contamination (HRS section 5.1.3).</p> <p>Level I: _____ people x 10 = _____</p> <p>Level II: _____ people x 1 = _____</p> <p>Sum =</p>	0												
<p>3. RESIDENT INDIVIDUAL: Assign a score of 50 if any Level I resident population exists. Assign a score of 45 if there are Level II targets but no Level I targets. If no resident population exists (i.e., no Level I or Level II targets), assign 0 (HRS Section 5.1.3).</p>	0												
<p>4. WORKERS: Assign a score from the table below for the total number of workers at the site and nearby facilities with areas of observed contamination associated with the site.</p> <table border="1"> <thead> <tr> <th>Number of Workers</th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1 to 100</td> <td>5</td> </tr> <tr> <td>101 to 1,000</td> <td>10</td> </tr> <tr> <td>>1,000</td> <td>15</td> </tr> </tbody> </table>	Number of Workers	Score	0	0	1 to 100	5	101 to 1,000	10	>1,000	15	5		
Number of Workers	Score												
0	0												
1 to 100	5												
101 to 1,000	10												
>1,000	15												
<p>5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value for each terrestrial sensitive environment (SI Table 16) in an area of observed contamination.</p> <table border="1"> <thead> <tr> <th>Terrestrial Sensitive Environment Type</th> <th>Value</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table> <p>Sum =</p>	Terrestrial Sensitive Environment Type	Value									0		
Terrestrial Sensitive Environment Type	Value												
<p>6. RESOURCES: Assign a score of 5 if any one or more of the following resources is present on an area of observed contamination at the site; assign 0 if none applies.</p> <ul style="list-style-type: none"> • Commercial agriculture • Commercial silviculture • Commercial livestock production or commercial livestock grazing 	0												
Total of Targets T=	5												

SOIL EXPOSURE PATHWAY WORKSHEET NEARBY POPULATION THREAT

LIKELIHOOD OF EXPOSURE		Score	Data Type	Ref.
7. Attractiveness/Accessibility (from SI Table 17 or HRS Table 5-6)	Value <u>10</u>			
Area of Contamination (from SI Table 18 or HRS Table 5-7)	Value <u>100</u>			
Likelihood of Exposure (from SI Table 19 or HRS Table 5-8)				
LE =		<u>125</u>		

TARGETS		Score	Data Type	Ref.
8. Assign a score of 0 if Level I or Level II resident individual has been evaluated or if no individuals live within 1/4 mile travel distance of an area of observed contamination. Assign a score of 1 if nearby population is within 1/4 mile travel distance and no Level I or Level II resident population has been evaluated.		<u>1</u>		
9. Determine the population within 1 mile travel distance that is not exposed to a hazardous substance from the site (i.e., properties that are not determined to be Level I or Level II); record the population for each distance category in SI Table 20 (HRS Table 5-10). Sum the population values and multiply by 0.1.		<u>4.4</u>		
T =		<u>5.4</u>		

SOIL EXPOSURE PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS

10. Assign the hazardous waste quantity score calculated for soil exposure																							
11. Assign the highest toxicity value from SI Table 16																							
12. Multiply the toxicity and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 2px 10px;">Product</th> <th style="padding: 2px 10px;">WC Score</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>>0 to <10</td><td>1</td></tr> <tr><td>10 to <100</td><td>2</td></tr> <tr><td>100 to <1,000</td><td>3</td></tr> <tr><td>1,000 to < 10,000</td><td>6</td></tr> <tr><td>10,000 to <1E + 05</td><td>10</td></tr> <tr><td>1E + 05 to <1E + 06</td><td>18</td></tr> <tr><td>1E + 06 to <1E + 07</td><td>32</td></tr> <tr><td>1E + 07 to <1E + 08</td><td>56</td></tr> <tr><td>1E + 08 or greater</td><td>100</td></tr> </tbody> </table>	Product	WC Score	0	0	>0 to <10	1	10 to <100	2	100 to <1,000	3	1,000 to < 10,000	6	10,000 to <1E + 05	10	1E + 05 to <1E + 06	18	1E + 06 to <1E + 07	32	1E + 07 to <1E + 08	56	1E + 08 or greater	100	WC = 1
Product	WC Score																						
0	0																						
>0 to <10	1																						
10 to <100	2																						
100 to <1,000	3																						
1,000 to < 10,000	6																						
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1E + 05 to <1E + 06	18																						
1E + 06 to <1E + 07	32																						
1E + 07 to <1E + 08	56																						
1E + 08 or greater	100																						

RESIDENT POPULATION THREAT SCORE:

(Likelihood of Exposure, Question 1;
Targets = Sum of Questions 2, 3, 4, 5, 6)

$$\frac{0.45 \times 1}{82,500} \text{ L E X T X W C}$$

0

NEARBY POPULATION THREAT SCORE:

(Likelihood of Exposure, Question 7;
Targets = Sum of Questions 8, 9)

$$\frac{125 \times 5.4 \times 1}{82,500} \text{ L E X T X W C}$$

0.008

SOIL EXPOSURE PATHWAY SCORE:

Resident Population Threat + Nearby Population Threat

0.008

(Maximum of 100)

AIR PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to air, assign a score of 550. Record observed release substances on SI Table 21.			
2. POTENTIAL TO RELEASE: If sampling data do not support a release to air, assign a score of 500. Optionally, evaluate air migration gaseous and particulate potential to release (HRS Section 6.1.2).			

LR = 500

TARGETS

<p>3. ACTUAL CONTAMINATION POPULATION: Determine the number of people within the target distance limit subject to exposure from a release of a hazardous substance to the air.</p> <p style="margin-left: 40px;">a) Level I: _____ people x 10 = _____</p> <p style="margin-left: 40px;">b) Level II: _____ people x 1 = _____ Total = 0</p>																							
<p>4. POTENTIAL TARGET POPULATION: Determine the number of people within the target distance limit not subject to exposure from a release of a hazardous substance to the air, and assign the total population score from SI Table 22. Sum the values and multiply the sum by 0.1.</p>																							
<p>5. NEAREST INDIVIDUAL: Assign a score of 50 if there are any Level I targets. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Population exists, assign the Nearest Individual score from SI Table 22.</p>																							
<p>6. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (SI Table 13) and wetland acreage values (SI Table 23) for environments subject to exposure from the release of a hazardous substance to the air.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 60%;">Sensitive Environment Type</th><th style="width: 40%;">Value</th></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr> <th>Wetland Acreage</th><th>Value</th></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	Sensitive Environment Type	Value									Wetland Acreage	Value											
Sensitive Environment Type	Value																						
Wetland Acreage	Value																						
<p>7. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Use SI Table 24 to evaluate sensitive environments not subject to exposure from a release.</p>																							
<p>8. RESOURCES: Assign a score of 5 if one or more air resources apply within 1/2 mile of a source; assign a 0 if none applies.</p> <ul style="list-style-type: none"> • Commercial agriculture • Commercial silviculture • Major or designated recreation area 																							
T = 0																							

AIR PATHWAY (concluded)

WASTE CHARACTERISTICS

<p>9. If any Actual Contamination Targets exist for the air pathway, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if there are no Actual Contamination Targets for the air pathway, assign the calculated HWQ score for sources available to air migration.</p>	0																						
<p>10. Assign the highest air toxicity/mobility value from SI Table 21.</p>																							
<p>11. Multiply the air pathway toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 2px 10px;">Product</th> <th style="padding: 2px 10px;">WC Score</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>>0 to <10</td><td>1</td></tr> <tr><td>10 to <100</td><td>2</td></tr> <tr><td>100 to <1,000</td><td>3</td></tr> <tr><td>1,000 to < 10,000</td><td>6</td></tr> <tr><td>10,000 to <1E + 05</td><td>10</td></tr> <tr><td>1E + 05 to <1E + 06</td><td>18</td></tr> <tr><td>1E + 06 to <1E + 07</td><td>32</td></tr> <tr><td>1E + 07 to <1E + 08</td><td>56</td></tr> <tr><td>1E + 08 or greater</td><td>100</td></tr> </tbody> </table>	Product	WC Score	0	0	>0 to <10	1	10 to <100	2	100 to <1,000	3	1,000 to < 10,000	6	10,000 to <1E + 05	10	1E + 05 to <1E + 06	18	1E + 06 to <1E + 07	32	1E + 07 to <1E + 08	56	1E + 08 or greater	100	WC = 0
Product	WC Score																						
0	0																						
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1E + 07 to <1E + 08	56																						
1E + 08 or greater	100																						

AIR PATHWAY SCORE:

LE x T x WC
82,500

<div style="font-size: 2em; margin: 0;">0 *</div> <div style="font-size: 0.8em; margin-top: 2px;">(maximum of 100)</div>
--

* air emissions at this site are controlled using a vacuum extraction system and a flare.

SITE SCORE CALCULATION		S	S ²
GROUND WATER PATHWAY SCORE (S _{GW})		0.345	6.119
SURFACE WATER PATHWAY SCORE (S _{SW})		60	3600
SOIL EXPOSURE (S _S)		0.008	0.00006
AIR PATHWAY SCORE (S _A)		0	0
SITE SCORE $\sqrt{\frac{S_{GW}^2 + S_{SW}^2 + S_S^2 + S_A^2}{4}}$			30

COMMENTS